

Remarks

Applicant thanks the Examiner for his careful consideration of the application.

Claims 1, 3 – 7, 10, 12 – 16, 21, and 23 - 26 are pending in the application.

Drawings

The Examiner objected to the drawings under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. The Examiner asserts that the pivot point located with reference to a centerline between the first and second pulley and a theoretical intersection of the belt strand as recited in Claim 1 is not shown. The Examiner should withdraw this limitation as this limitation is shown in Figure 5. It is labeled P.

Claim Rejections - 35 USC § 102

The Examiner rejected claims 1, 3 – 7, 10, 12 – 16, 21, and 23 - 26 under 35 USC § 102(b) as being anticipated by Hutchison (US Patent No. 1,615,544) ("Hutchison"). Applicant respectfully traverses these rejections.

In claim 1, Applicant recites a belt drive system. The belt drive system includes first and second pulleys and a belt reeved over the first and second pulleys. The first pulley is loaded away from the second pulley in a pivoting fashion about a pivot point located so as to increase the drive capacity of the belt drive system and located with reference to a centerline between the first pulley and the second pulley and a theoretical intersection of the belt strands, such that application of torque to the first pulley in a first direction proportionally elevates average belt tension, while application of torque to the first pulley in the opposite direction proportionally decreases average belt tension.

In claim 10, Applicant recites a belt drive system. The system includes a pivoting motor mount attached to a frame, a pivot point of the pivoting motor mount about which the pivoting motor mount pivots and via which the pivoting motor mount is attached to the frame, a first pulley attached to the pivoting motor mount and receiving motive

power from a motor mounted on the pivoting motor mount, a second pulley attached to an element of a machine in which the belt drive system is used, a belt reeved over the first pulley and the second pulley, thereby transferring motive power from the motor to the second pulley via the first pulley, and a biasing device. The biasing device is attached to the pivoting mount and biases the first pulley away from the second pulley about a pivot point located so as to increase the drive capacity of the belt drive system and located with reference to a centerline between the first pulley and the second pulley and a theoretical intersection of the belt strands such that changes in motive power from the motor result in changes in average belt tension and corresponding changes in drive torque capacity.

In claim 21, Applicants recite a belt tensioning system in a marking device comprising a frame, a media path and a rotating element driven by a motor via a belt, a drive pulley, and a driven pulley, where the belt being reeved over the drive pulley and the driven pulley. The belt tensioning system includes a pivoting motor mount attached to the frame via a freely pivoting connection at a pivot point located so as to increase the drive capacity of the belt drive system and located with reference to a centerline between the drive pulley and the driven pulley and a theoretical intersection of the belt strands, a first biasing mechanism arranged to induce a biasing moment M_{bias} about the pivot point, and belt load on the pulleys thereby reorienting when torque is applied such that application of torque to the first pulley in a first direction proportionally elevates average belt tension, while application of torque to the first pulley in the opposite direction proportionally decreases average belt tension.

The Examiner should withdraw the rejection to claims 1, 10, and 21 as the Examiner has not shown that Hutchison discloses all the limitations of any of claims 1, 10, and 21. Specifically the Examiner has not shown that Hutchison discloses locating a pivot point with reference to a centerline between two pulleys and a theoretical intersection of the belt strands (Q), such that application of torque in a first direction proportionally elevates average belt tension, while application of torque in the opposite direction proportionally decreases average belt tension. The Examiner has not pointed

to any passage in Hutchison that discloses any rationale for locating the pivot point, let alone that doing so would result in characteristic increases or decreases in the average belt tension during system operation, proportionate to the applied torque. Hutchison apparently just discloses a single fixed pivot point about which one of the pulleys may swing, and which like other prior art pivot points appears to be located such that the effect of gravity passes through the center of the pulley and the pivot point in a single line. The Examiner has not identified a passage in Hutchison disclosing the significance of this location.

Further, the Examiner has not shown that Hutchison discloses deliberately choosing the position of the pivot point P with respect to Q so as to increase or decrease drive torque capacity, i.e., so as to alter the effect of torque on belt tension. It is apparent that positioning the pivot point P further to the right with respect to Q (increasing L_x) in Figure 5 of the present application would increase the force F_2 , which represents a belt resultant in the system under load (and correspondingly average belt tension). Conversely, moving the pivot point to the left (decreasing L_x) would decrease the force F_2 . Similarly, it is apparent that lowering the pivot point P with respect to Q (increasing L_y) would decrease the Force F_2 and that raising the pivot point (decreasing L_y) would increase F_2 . The Examiner has not shown where the drawings or description of Hutchison disclose any recognition of these relationships let alone an application thereof. It is careful placement of pivot point P that assists a user to offset the belt tension created by the biasing mechanism by a desired amount during mechanism operation. The disclosed embodiments of the invention employ a geometry such that as torque is applied in a particular direction, belt tension, and this drive capacity, increases proportionally without requiring an additional mechanism.

For each of the foregoing reasons, claims 1, 10, and 21 should be allowed in view of Hutchison.

Claims 3 – 7, 12 – 16, and 23 – 26 should be allowed if claims 1, 10, and 21 are allowed as claims 3 – 7 depend from claim 1, claims 12 – 16 depend from claim 10, and claims 23 – 26 depend from claim 21.

Conclusion

No additional fee is believed to be required for this amendment. However, the undersigned Xerox Corporation attorney hereby authorizes the charging of any necessary fees, other than the issue fee, to Xerox Corporation Deposit Account No. 24-0025. This also constitutes a request for any needed extension of time and authorization to charge all fees therefor to Xerox Corporation Deposit Account No. 24-0025.

A telephone interview is respectfully requested at the number listed below prior to any further Office Action, i.e., if the Examiner has any remaining questions or issues to address after this paper. The undersigned will be happy to discuss any further Examiner-proposed amendments as may be appropriate.

Respectfully submitted,

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